

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION**

EXPERIMENTAL

(Nature of Service)

XT MO

(Class of Station)

WM9XDQ

(Call Sign)

1013-EX-ST-2017

(File Number)

NAME Astra Space, Inc.

This Special Temporary Authorization is granted upon the express condition that it may be terminated by the Commission at any time without advance notice or hearing if in its discretion the need for such action arises. Nothing contained herein shall be construed as a finding by the Commission that the authority herein granted is or will be in the public interest beyond the express terms hereof.

This Special Temporary Authorization shall not vest in the grantee any right to operate the station nor any right in the use of the frequencies designated in the authorization beyond the term hereof, nor in any other manner than authorized herein. Neither the authorization nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This authorization is subject to the right of use of control the Government of the United States conferred by Section 706 of the Communications Act of 1934.

Special Temporary Authority is hereby granted to operate the apparatus described below:

Purpose Of Operation:

Astra Test Launch 1 is the first flight of a new two-stage lox kerosene rocket.

Station Locations

- (1) MOBILE: Launch vehicle stage 2. Sub-orbital from PSC LP2., centered around NL 57-26-04; WL 152-20-34
- (2) MOBILE: Launch vehicle stage 1. Sub-orbital from PSC LP2., centered around NL 57-26-04; WL 152-20-34

Frequency Information

MOBILE: Launch vehicle stage 2. Sub-orbital from PSC LP2., centered around NL 57-26-04; WL 152-20-34

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2257 MHz	MO	996KF1D	3.8 W (ERP)	0.0003 %
2273 MHz	MO	5M25G1D 653KG1D	3.8 W (ERP)	0.0003 %

This authorization effective December 22, 2017 and
will expire 3:00 A.M. EST April 19, 2018

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

MOBILE: Launch vehicle stage 1. Sub-orbital from PSC LP2., centered around NL 57-26-04; WL 152-20-34

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2208 MHz	MO	3M88F1D	3.8 W (ERP)	0.0003 %
2235 MHz	MO	5M03G1D	3.8 W (ERP)	0.0003 %

Special Conditions:

- (1) All Astra Space, Inc. operations granted on an experimental basis shall be on an unprotected, non-interference basis to authorized federal stations.
- (2) All operations shall be limited to telemetry, tracking and launch vehicle communications for Astra Test Launch 1 launch vehicle from Pacific Spaceport Complex, Alaska. This STA is limited to a single Astra Space, Inc. launch. This STA will expire as soon as the launch has been completed or 19 April 2018, whichever occurs first.
- (3) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux density limits, unless otherwise coordinated and agreed to. PFD analysis and exceedances shall be provided in the FCC application and provided to the NTIA for US Government review.
- (4) Astra Space, Inc. shall be aware that future non-federal launches will be considered on a case-by-case basis, especially for requests in the band 2200-2290 MHz, and Astra Space, Inc. shall have no expectations that future launches will be approved.
- (5) Due to potential harmful interference to naval activities, Astra Space, Inc. RF operations plan shall be submitted, at least 60 days prior to planned launch date, to the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Mr. James Moneyhon (540)653-3477, or james.moneyhon@navy.mil, for assessment. A blackout zone of 1500 nautical mile radius, centered at 22N160W, shall be assumed, unless otherwise coordinated with, and agreed to, by the NSWCDD. Astra Space, Inc. must also comply with any and all restrictions that may be levied by the Naval Surface Warfare Center, Dahlgren Division (NSWCDD).
- (6) As soon as possible, but no later than 60 business days prior to the planned launch, Astra Space, Inc. is required to provide, as a minimum, launch date/time/window and planned first- and second-stage trajectory, transmission frequencies with associated duration/cut-off time to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Felipe Arroyo (felipe.arroyo-1@nasa.gov, NASA/WFF), Scott Galbraith (vincent.s.galbraith@nasa.gov, NASA/GSFC), Stephen Horan (stephen.j.horan@nasa.gov, NASA/LARC), NOAA Satellite Operations Control Center (philip.l.whaley@noaa.gov), Richard Ontiveros, (richard.ontiveros1@navy.mil, NMSC), and Cathy Sham (catherine.c.sham@nasa.gov). In the event of last-minute changes, 48-hour notice is required.

Special Conditions:

- (7) Sixty (60) days prior to transmitting at Pacific Spaceport Complex, Alaska, Astra Space, Inc. shall coordinate and schedule their operations with Scott Galbraith (Vincent.s.galbraith@nasa.gov 301-286-5089, NASA GSFC SMO), and the Joint Frequency Management Office Alaska (907.552.8223).
- (8) The STOP BUZZER POC information, for launch operations shall be provided to NTIA (bmitchell@ntia.doc.gov). This phone shall be manned 4/7.
- (9) Astra Space, Inc. shall keep a log of all transmissions in the band 2200-2290 MHz and provide to the NTIA after the mission. This log shall include, as a minimum, at least date, time, frequency, EIRP density, pointing direction of all antennas. The log shall be provided to the following NTIA personnel no later than three (3) weeks after completing the mission: bmitchell@ntia.doc.gov and edrocella@ntia.doc.gov.